Refugee Health and Immunizations

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OBJECTIVES

- Global Immunizations
- Immunization Challenges and Disparities for Refugees/Immigrants
- Interpret International Immunization Records

Why do we need Global Immunization?

- Importation of infectious disease
- Global Disease Burden
- Varied Global Coverage
- Outbreaks
- Vaccine quality

Vaccine Preventable Disease Burden

Total and vaccine preventable diseases cause specific deaths, children under age 5, by WHO region, 2008

	All cause	Pneumococcal diseases	Rotavirus diarrhea	Hib	Pertussis	Measles	Tetanus
AFR	4,202,000	247,000	217,000	94,000	84,000	25,000	27,000
AMR	284,000	13,000	8,000	1,000	2,000	-	1,000
EMR	1,237,000	68,000	90,000	32,000	19,000	7,000	14,000
EUR	148,000	7,000	3,000	3,000	-	-	-
SEAR	2,390,000	107,000	127,000	52,000	90,000	84,000	17,000
WPR	534,000	33,000	8,000	17,000	1,000	2,000	4,000
Total	8,795,000	476,000	453,000	199,000	195,000	118,000	63,000

Number rounded to thousand

Global Uptake 2012

Table 1 **Vaccination coverage, by vaccine and WHO Region,[a] worldwide, 2012**
Tableau 1 **Couverture vaccinale, selon le vaccin, la Région OMS[a] et dans le monde en 2012**

WHO Region – Région OMS	Vaccination coverage (%) – Couverture vaccinale (%)							
	BCG	DTP3 – DTC3	Polio3	MCV1	HepB3	Hib3	Rota last – Rota dernier	PCV3
Total (worldwide) – Total (monde entier)	**89**	**83**	**84**	**84**	**79**	**45**	**11**	**19**
African – Afrique	82	72	77	73	72	65	5	21
American – Amériques	96	93	93	94	91	91	69	77
Eastern Mediterranean – Méditerranée orientale	88	83	82	83	81	58	14	13
European – Europe	93	95	96	94	79	83	2	39
South-East Asian – Asie du Sud-Est	88	75	74	78	72	11	–	0
Western Pacific – Pacifique occidental	97	97	97	97	91	14	1	1

[a] Weighted regional average. – Moyenne régionale pondérée.

BCG = Bacille Calmette-Guérin; DTP3 = 3 doses of diphtheria-tetanus-pertussis vaccine; Polio3 = 3 doses of polio vaccine; MCV1 = 1 dose of measles-containing vaccine; HepB3 = 3 doses of hepatitis B vaccine; Hib3 = 3 doses of *Haemophilus influenzae* type b vaccine; Rota last = last dose of rotavirus series; PCV3 = 3 doses of pneumococcal conjugate vaccine. – BCG = Bacille Calmette-Guérin; DTC3 = 3 doses de vaccin antidiphtérique-antitétanique-anticoquelucheux; Polio3 = 3 doses de vaccin antipoliomyélitique; MCV1 = 1 dose de vaccin à valence rougeole; HepB3 = 3 doses de vaccin contre l'hépatite B; Hib3 = 3 doses de vaccin contre *Haemophilus influenzae* type b; Rota dernier = dernière dose de la série de vaccin contre les rotavirus; PCV3 = 3 doses de vaccin antipneumococcique conjugué.

International Vaccine Quality

- Regulatory Oversight
- Interchangeability
- Equivalence
- Safety
- Monitoring

(updated: 26 February 2014)

Table 1: Summary of WHO Position Papers - Recommendations for Routine Immunization

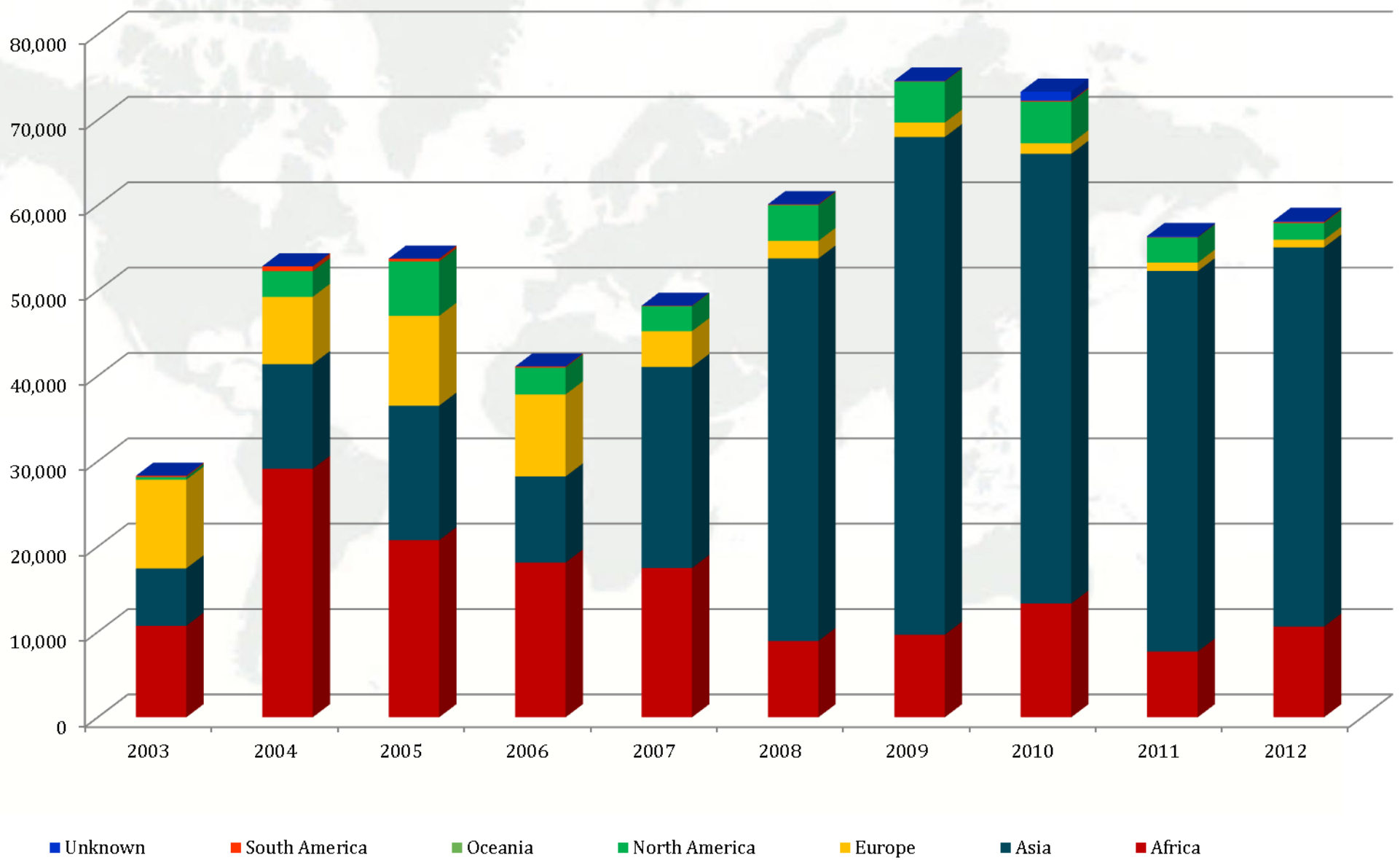
Antigen		Children (see Table 2 for details)		Adolescents	Adults	Considerations (see footnotes for details)
Recommendations for all						
BCG[1]		1 dose				Exceptions HIV
Hepatitis B[2]		3-4-doses (see footnote for schedule options)		3 doses (for high-risk groups if not previously immunized) (see footnote)		Birth dose Premature and low birth weight Co-administration and combination vaccine Definition high-risk
Polio[3]		3-4 doses (at least one dose of IPV) with DTP				OPV birth dose Type of vaccine Transmission and importation risk criteria
DTP[4]		3 doses	Booster (DTP) 1-6 years of age	Booster (Td) (see footnote)	Booster (Td) in early adulthood or pregnancy	Delayed/interrupted schedule Combination vaccine
Haemophilus influenzae type b[5]	**Option 1**	3 doses, with DTP				Single dose if ♦ 12 months of age Not recommended for children > 5 yrs old Delayed/interrupted schedule Co-administration and combination vaccine
	Option 2	2 or 3 doses, with booster at least 6 months after last dose				
Pneumococcal (Conjugate)[6]	**Option 1**	3 doses, with DTP				Vaccine options Initiate before 6 months of age Co-administration HIV+ and preterm neonates booster
	Option 2	2 doses before 6 months of age, plus booster dose at 9-15 months of age				
Rotavirus[7]		Rotarix: 2 doses with DTP RotaTeq: 3 doses with DTP				Vaccine options Not recommended if > 24 months old
Measles[8]		2 doses				Combination vaccine; HIV early vaccination; Pregnancy
Rubella[9]		1 dose (see footnote)		1 dose (adolescent girls and/or child bearing aged women if not previously vaccinated; see footnote)		Achieve and sustain 80% coverage Combination vaccine and Co-administration Pregnancy
HPV[10]				3 doses (girls)		Vaccination of males for prevention of cervical cancer is not recommended at this time

Refer to http://www.who.int/immunization/documents/positionpapers/ for most recent version of this table and position papers.

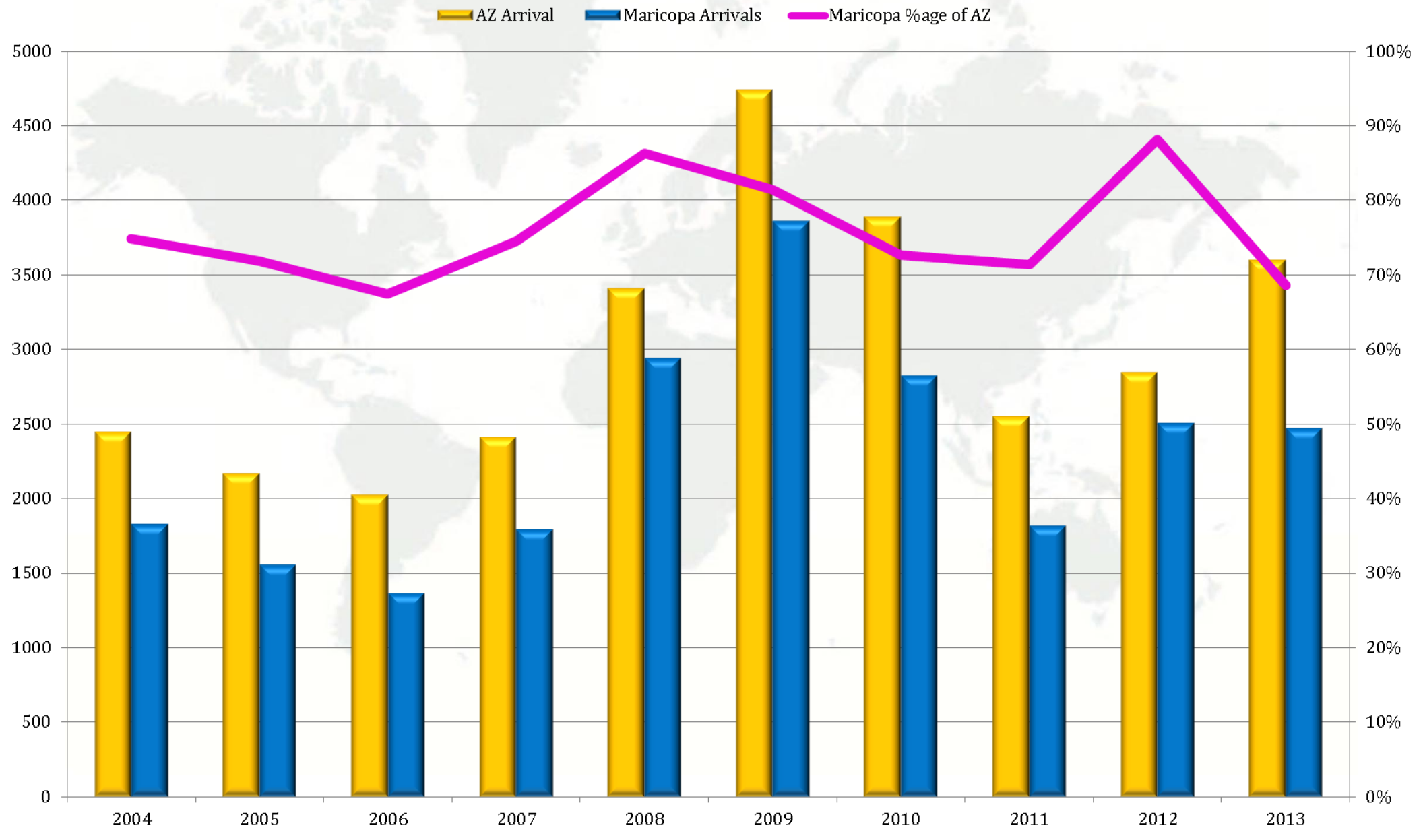
This table summarizes the WHO child vaccination recommendations. It is designed to assist the development of country specific schedules and is not intended for direct use by health care workers. Country specific schedules should be based on local epidemiologic, programmatic, resource and policy considerations.

While vaccines are universally recommended, some children may have contraindications to particular vaccines.

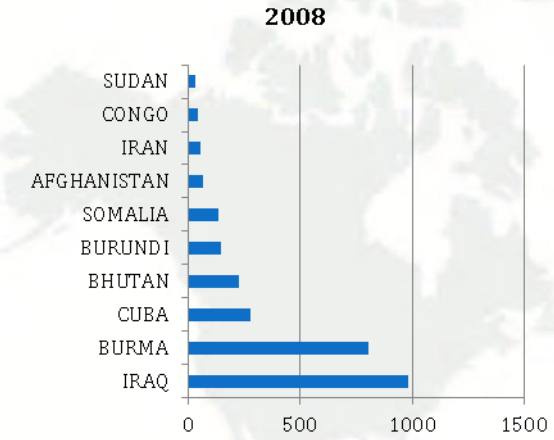
US Refugee Arrivals and Country of Nationality

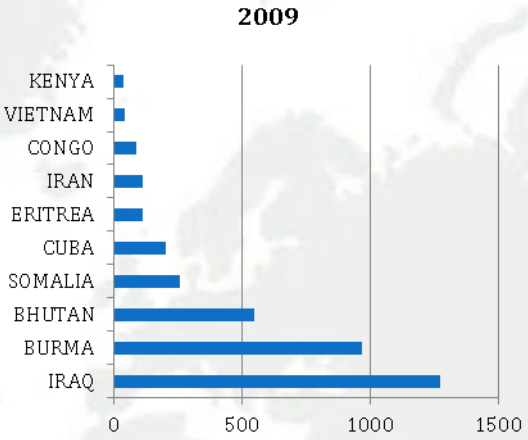


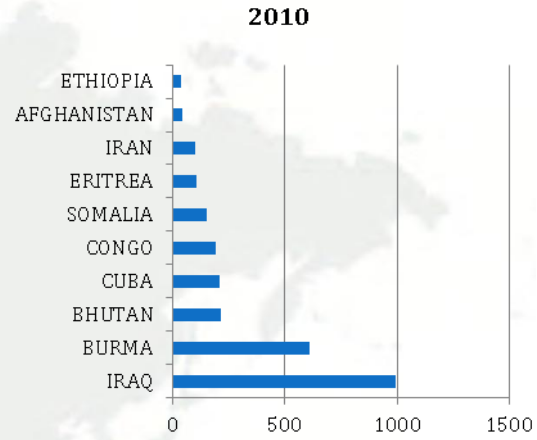
AZ and Maricopa Refugee Arrivals

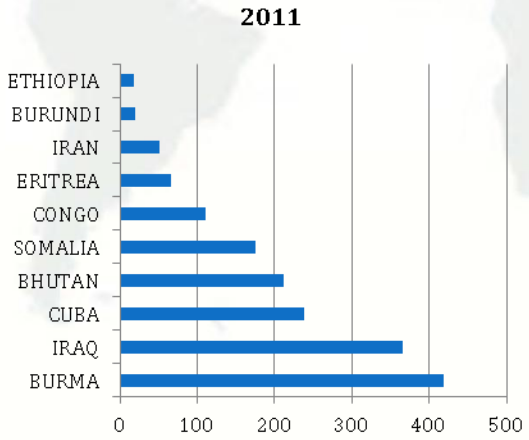


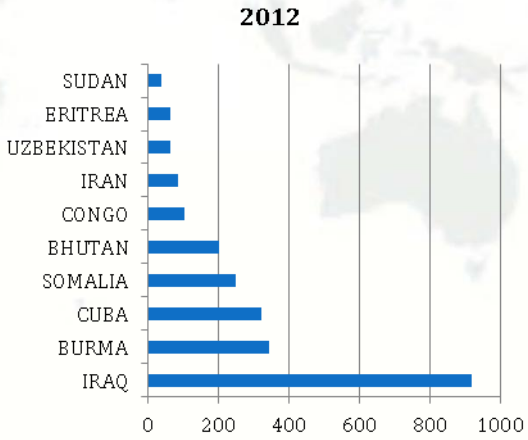
Maricopa Refugee Arrivals by Country











Health Status of Immigrants & Refugees

- Domestic Refugee Medical needs based on
  - Country of origin
  - Country of transit
  - Length of time as refugee
  - Quality of health care
- Refugee Health depends
  - Chronic Disease
  - Nutritional Status
  - Immunizations status

Reasons of inadequate immunizations

- Immunizations schedule differ by country
- Limited health care access
- Interrupted health care secondary to war, chaos, natural disasters
- Limited services in adults and adolescents
- Lack of available vaccines and funding

Camp Clinic

Pre-departure Vaccine

- Review of available vaccine history by IOM
- Vaccine first dose at screening within 2-6 months of pre-departure
- Vaccine 2nd dose given after 2 months
- No routine live virus given within a month of pre-departure

Immunization Schedules for U.S.-Bound Refugees administered by the International Organization for Migration (IOM)[a] Feb 2014 - Prepared by Immigrant, Refugee and Migrant Health Branch, Division of Global Migration and Quarantine, CDC

Region/Country	Vaccines Given to Eligible Refugees in All Listed Countries		Comments
	Age	Vaccines[3]	
Ethiopia[1] (started Nov 2013) Kenya[2] (started Sept 2013) Malaysia (started Sept 2013) Nepal (started Dec 2012) Thailand (started Dec 2012)	Birth-adult	HepB x2	**General** IOM will attempt to complete the series of each vaccine shown in the previous column if time permits **Polio vaccine** • tOPV (virus types 1, 2, 3) is used in all countries except Malaysia, and counts towards U.S. polio vaccine requirements. • When IPV becomes available for older children in Malaysia, it will be administered for children up to 11 years of age. IPV counts towards U.S. polio vaccine requirements. • In Kenya, from Jun 2013 all refugees receive 3 doses of OPV as part of a polio outbreak response. **MMR vaccine** • Administration of 2 doses of MMR began in March 2011 in Kenya, Sept. 2011 in Malaysia, and January 2013 in Ethiopia. • In Malaysia, from Sept 2011 to Feb 2013, children 6-11 mos received 1 dose of MMR as part of a measles outbreak response. **Hep B Vaccine** • Testing for hepatitis B virus infection (HbsAg) prior to vaccination began in Thailand and Nepal from Jan 2014. All refugees negative for HbsAg receive Hep B vaccination. **PCV-13 vaccine** • When available, PCV-13 will be given to children 6 wks -<5 yrs of age. *A second dose will be given to children up to age 2 yrs. One dose of PCV-13 will also be given to all immunocompromised persons aged 5 yrs and older.*
	6 wks-<5 yrs	Pentavalent (DTP,Hib,HepB) x 2 (2nd dose in urban refugees only)	
	5 yrs-<7 yrs	DTP [4] x2 (2nd dose in urban refugees only)	
	6 wks-<11 yrs	tOPV x2 doses	
	6 wks-<7 yrs	IPV (Malaysia only) x2	
	7 yrs-adult	Td x1	
	≥ 1yr-born ≥ 1957	MMR x2	
Tanzania	≥ 1yr-born - ≥ 1957	MMR x1	One dose of MMR is administered at time of initial health assessment (approximately 2-6 months before arrival in U.S.)
Iraq Jordan	6 wks-10 yrs	tOPV x1	tOPV administration started in January 2014 for both countries

"Do you ever feel we're having
too many inocluations forced on us?"

Reasons for Re-immunization

- Falsification
- Immune Response
- Monovalent vaccines
- Inappropriate age of vaccination
- Inadequate intervals between dosages
- Outbreak

Polio Outbreak 2013

UN News Centre
with breaking news from the UN News Service

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Polio outbreak in refugee complex in Kenya being contained, say UN agencies

New Vaccination Criteria

- Changed December 14th 2009
- HPV and zoster vaccines not required
- MCV4 required for 11-18 years old
- MPSV and monovalent MCV not acceptable
- Influenza required for 6 months to 18 years and for 50 years and older during influenza season

Criteria for “required” Vaccine

- Age appropriate for the immigrant applicant
- Protection against a disease that has the potential to cause an outbreak
- Protection against a disease that has been eliminated or is in the process of elimination

Medical Exam Requirements

- Applicants must show proof of having received all required vaccinations.
- If not, they should receive the first dose of required vaccines at that initial visit
- Follow up with PCP to complete the series
- Immigrants in the US who are applying to change their status to become “permanent residents” must also have been vaccinated.

Criteria for “required” vaccines

- International vaccines valid in US
- **Self-reported doses of vaccines are not acceptable.**
- Written vaccine with dates of administration required
- Hepatitis B Screening and vaccination
- Laboratory evidence of immunity acceptable

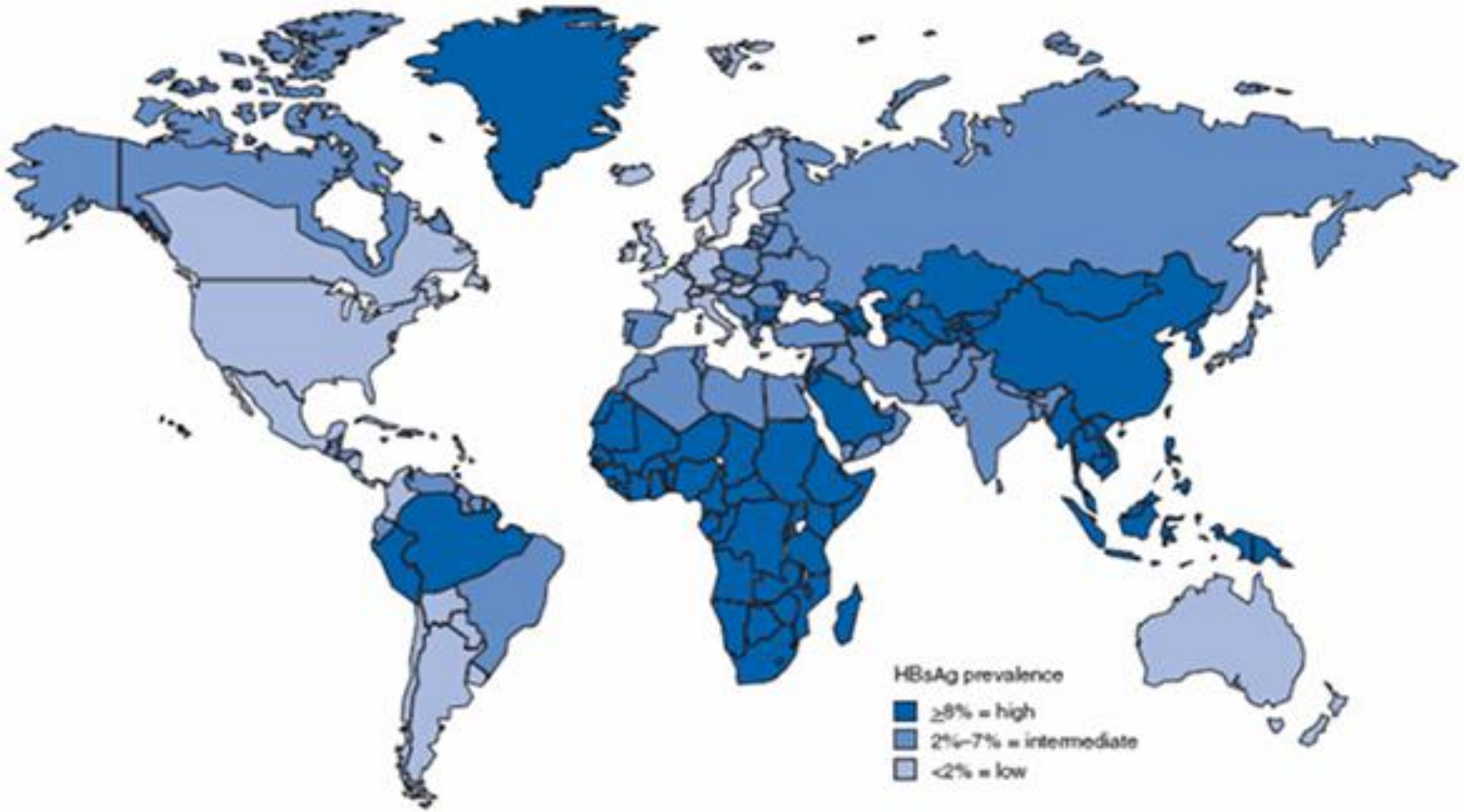
Required Vaccines

- Mumps
- Measles
- Rubella
- Polio
- Tetanus
- Diphtheria
- Pertussis
- H influenza type B
- Hepatitis A
- Hepatitis B Rotavirus
- Meningococcal
- Varicella
- Pneumococcal
- Seasonal Influenza

Laboratory Evidence for Immunity

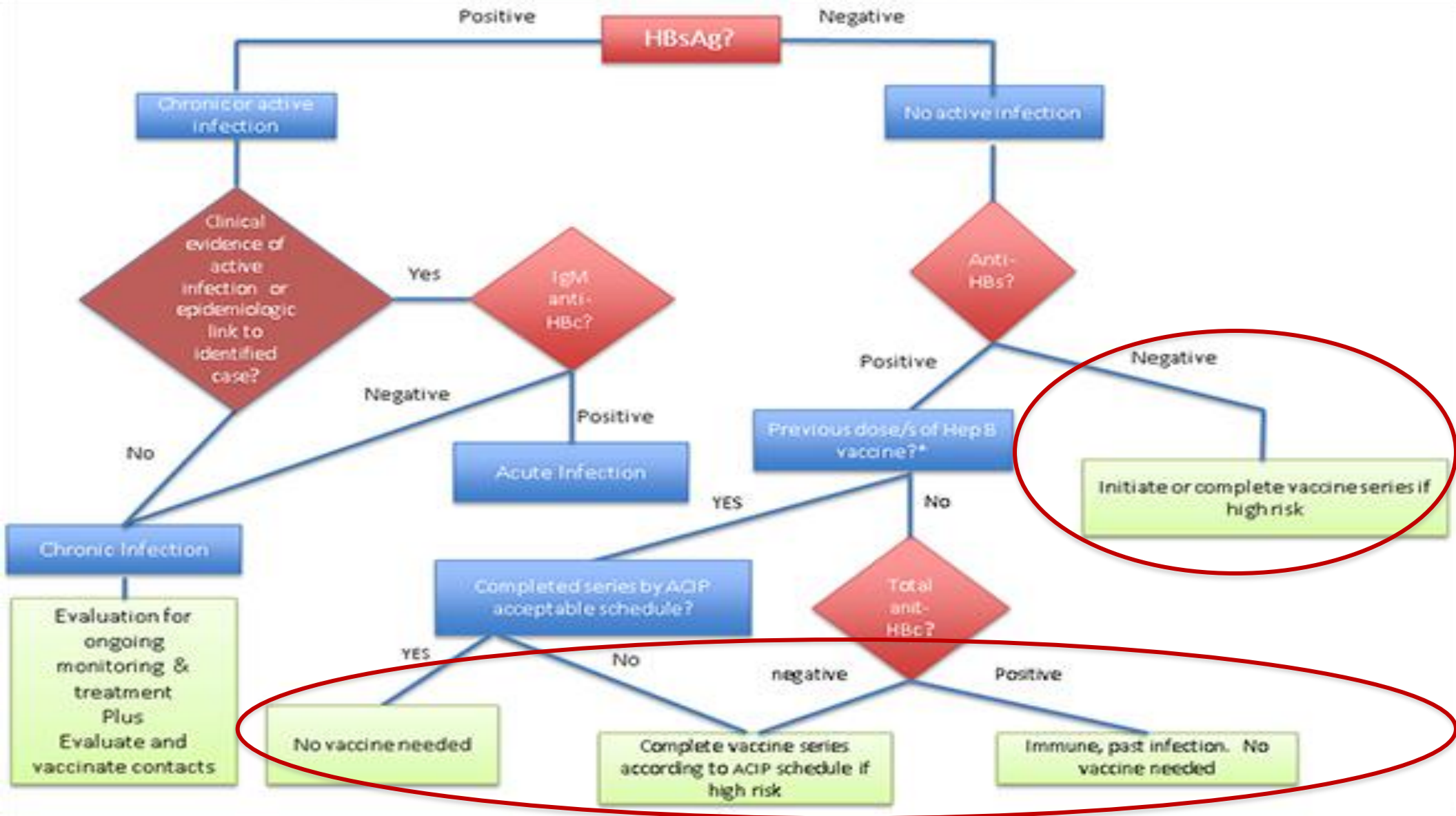
- Laboratory evidence of immunity is acceptable
  - Measles
  - Mumps
  - Rubella
  - Polio
  - Hepatitis B
  - Hepatitis A
  - Varicella

Geographic distribution of chronic hepatitis B virus (HBV) Infection - worldwide, 2006

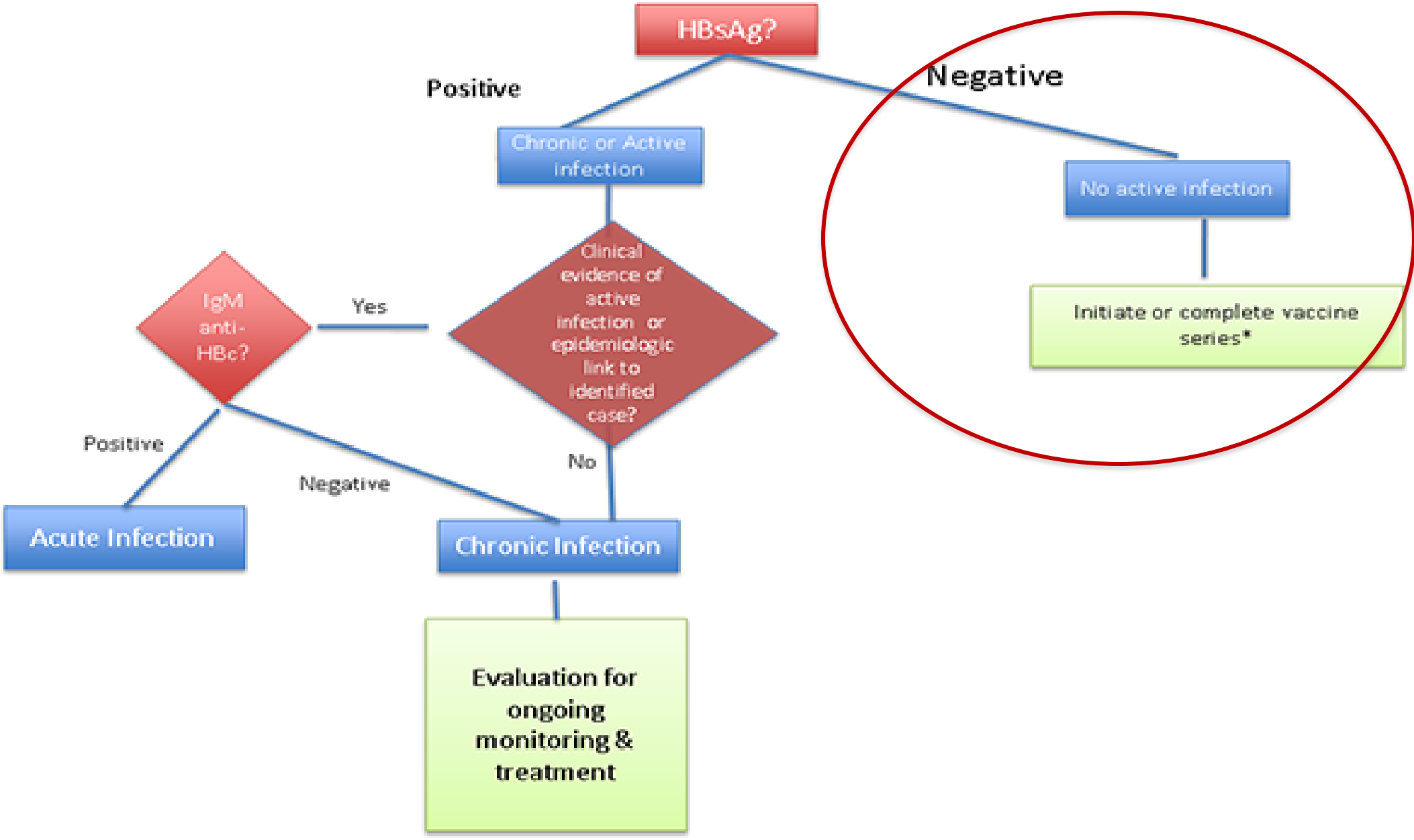


Source: CDC. Travelers' health; yellow book. Atlanta

Hepatitis B screening algorithm for those ≥ 18 years old born in countries with hepatitis B prevalence rates of ≥ 2%, or those considered at high risk in countries where prevalence rates are < 2%



Hepatitis B screening algorithm for those < 18 years old born in countries with hepatitis B prevalence rates of ≥ 2



Domestic Provider Challenges

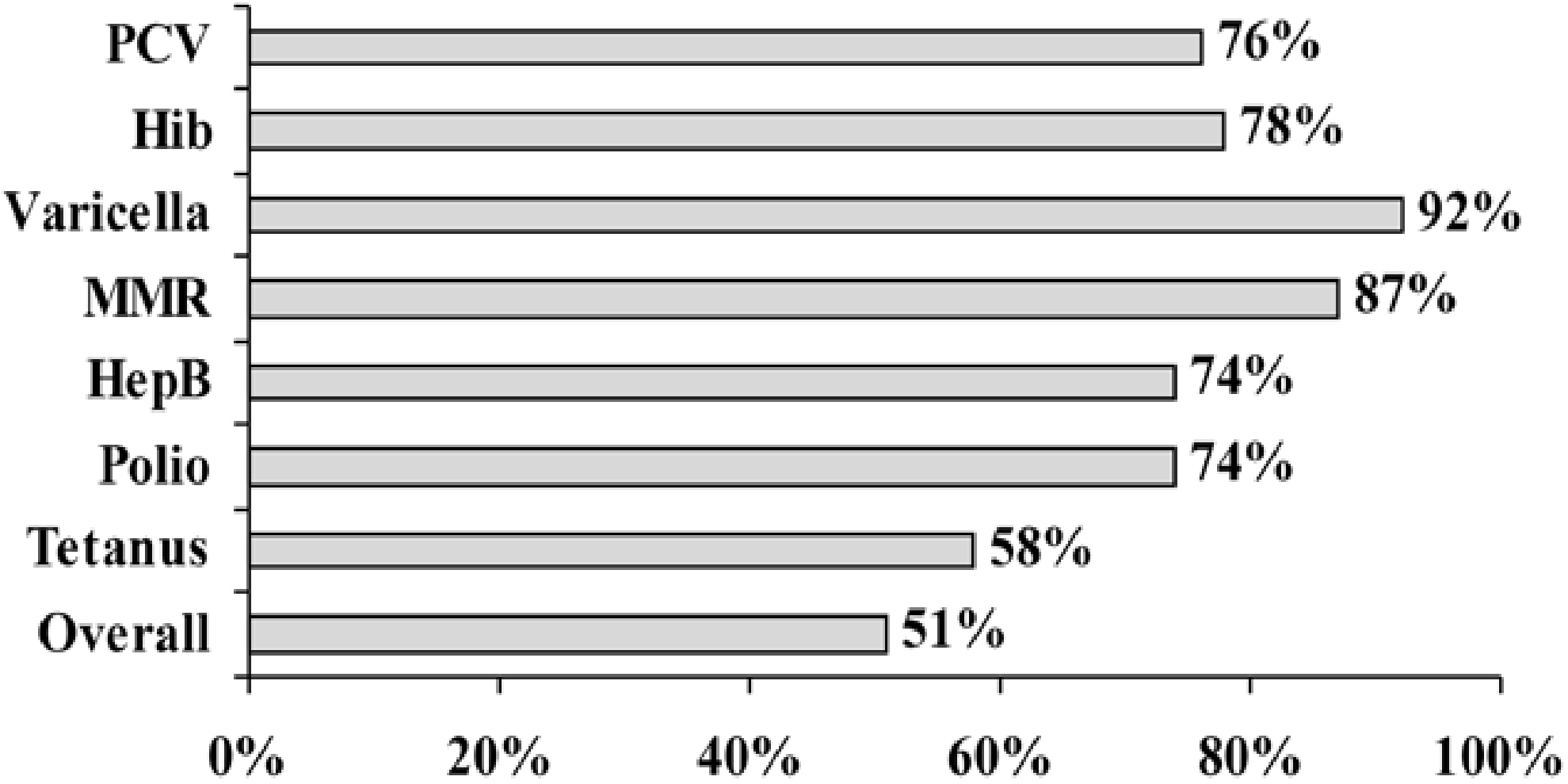
- Review of available records
- Knowledge of what immunizations to give
- Plan to give catch up immunization
- Right vaccines at the right time
- Ensure completion of vaccine series

Immunization Rates 1 year

- Retrospective chart review
- 86% (218/254) children seen at the clinic
- 198 children mean age 8.8 years
- 71% from Liberia
- 51% had follow-up care for one year

Watts, J. et al Medicine & Health 2011, 94(10): 290-293

Up-to-date immunization rates after one year



Watts, J. et al Medicine & Health 2011, 94(10): 290-293

The association of age & number of PCP visits with overall up-to-date immunization

		Unadjusted		Adjusted for age and # of visits	
		OR (95% CI)	**P value**	**OR (95% CI)**	**P value**
AGE	0-35 months	0.78 (0.28-2.21)	0.65	0.42 (0.13-1.36)	0.15
	36-83 months	0.48 (0.25-0.94)	0.03*	0.36 (0.17-0.77)	0.008*
	7 years and up	Reference Group	0.10	Reference Group	0.02
Number PCP Visit *p < 0.05		1.32 (1.18-1.49)	0.00*	1.37 (1.20-1.56)	0.00*

Watts, J. et al Medicine & Health 2011, 94(10): 290-293

What are the Goals ?

- Eliminate Disparities in immunization rates
- Complete vaccine series
- Decrease disease burden

What are the Patient Barriers?

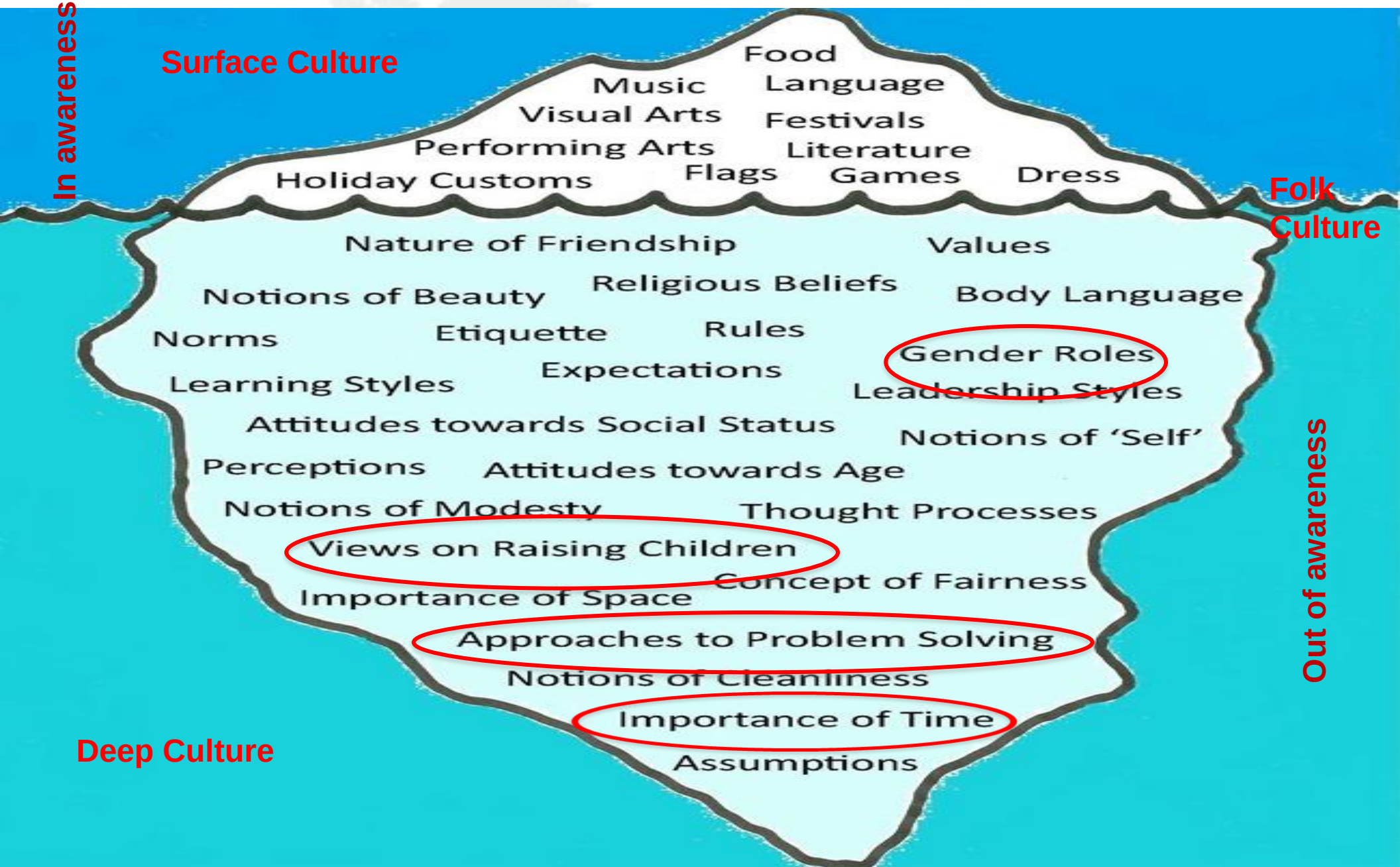
- **Health System Access**
  - Where to go
  - Why to go
- **Trust**
  - Who to go to
- **Cost**
  - Medical Insurance
  - Vaccine Coverage's
- **Health Literacy**
  - When to go


AH-HA! WE FOUND THE PROBLEM!
BIG INSURANCE
U.S. HEALTH SYSTEM

Patient Barriers

- Competing priorities
  - What is more important?
    - » **Income/Jobs**
    - » **Basic needs**
- Language
  - Who is the interpreter?
- Cultural Issues, Diversity
- Nativity
- Race/Ethnicity
- Gender Concordance

Cultural Iceberg



"All we have to do is place them on the waiting room chairs!"

Provider Barriers

- Knowledge
  - Refugee health needs
  - Catch up immunization
  - Vaccine availability
- Systems
  - Staff training
    - Time
    - Nursing Support
  - Access
  - Health Insurance and vaccine coverage's

Challenges

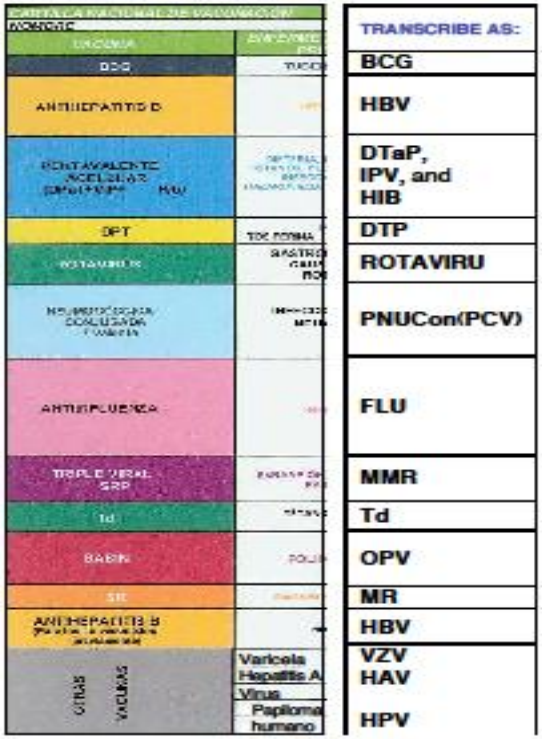
- Follow up
  - Mobility
  - Availability of vaccine
  - Recognition of issue
- Documentation of success/failure
  - Define refugee in demographic data

Mexico Vaccines

Transcribing official immunization records (Mexico)

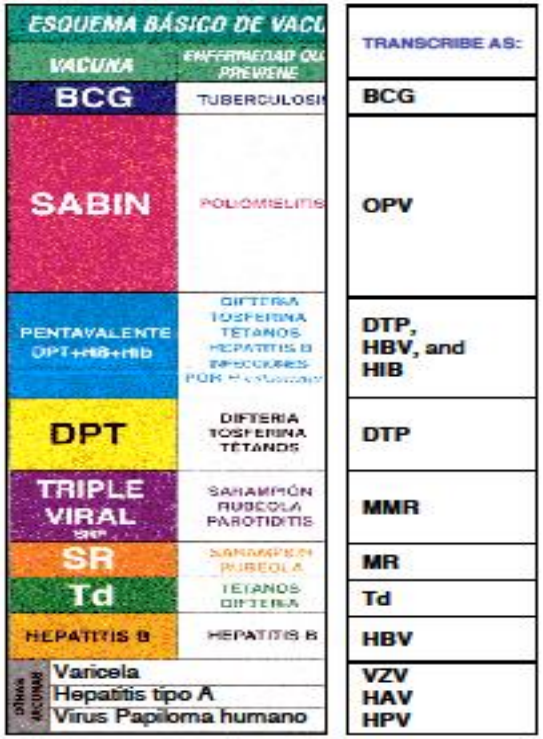
Cartilla Nacional de Vacunacíon (2007-)

Transcribe these immunizations in the *Vaccination Quick Entry* screen.



Cartilla Nacional de Vacunacíon (2000-6)

Transcribe these immunizations in the *Vaccination Quick Entry* screen.



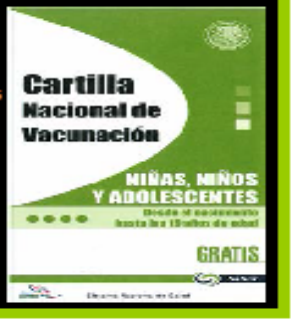
Source: El Consejo Nacional de Vacunación (CONAVA) – conava.gob.mx

Foreign Immunization Card

Tips on Interpreting Mexico's National Immunization Record (Cartilla Nacional de Vacunación)

The Mexican Immunization Record is the official document used nationally to record immunizations provided to children and adolescents in Mexico (birth to 19 years of age) in the public and private sector.

This document also helps parents and family members to know their children's basic immunizations and the recommended ages for each vaccine.



Demographic Information

The first section on the inside of this document contains demographic information.

- Name Section Includes "primer y segundo apellido (first and second last name)" or paternal and maternal last names, respectively.
- Dates in Mexico are written Day/ Month/ Year. For instance 20/ 1 /2003 = Jan 20, 2003

Basic Immunization Schedule

The second part of the document contains information on the basic childhood immunization schedule, outlined in 5 columns:

1-VACUNA (Vaccine)
2- ENFERMEDAD QUE PREVIENE (Preventable Disease)
3- DOSIS (Dose)
4-EDAD (Age)
5-FECHA DE VACUNACIÓN (Date of Vaccine Administration).

- Dates of vaccine administration are recorded in pen.
- Next due date is always recorded in pencil.
- Clinic stamp or signature of person administering vaccine & title, are recorded next to the date of vaccination.

Private Sector Vaccines

Vaccines administered in the private sector are recorded in the grey section: OTRAS (other)

MEXICO (Private Sector)				USA	
Recommended Schedule	Vaccine	Preventable Disease		Vaccine	Recommended Schedule
2m, 4m, 6m	Pentavalente DPT + HB+ Hib Pediarix is not available in Mexico	Diphtheria Pertussis Tetanus Hepatitis B Hib	Diphtheria Pertussis Tetanus Hepatitis B IPV	Pediarix DTaP + IPV + Hep B	2m, 4m, 6m
Hep B + Hib Vaccine Not used in Mexico			Hepatitis B H influenzae b	Comvax Hep B + Hib	2m, 4m, 12-15m
12-18 months	Varicela	Varicella		Varicella	12-18 months
2m, 4m, 6m, and 12-15m	Antineumocócica Conjugada (7 serotipos)	Pneumococcal Disease		Pneumococcal Conjugate Vaccine	2m, 4m, 6m, and 12-15m
1 yrs, and 6m after dose #1	Hepatitis A*	Hepatitis A		Hepatitis A	1 yr, and 6m after dose #1
Single antigen not used. Only available as part of "Pentavalente" given at 2, 4, and 6 months of age.		H influenzae b		Hib	2m, 4m, 6m, and 12-15m
Yearly, after 6 months of age	Influenza	Influenza		Influenza	Annual for children 6-23 month of age.

About Vaccines Available in Mexico in Private Practice

Although the majority of vaccines included the Mexican Immunization Record are administered in the public sector, some patients may opt to receive additional shots recommended by their pediatricians (private sector). These Vaccines are also recorded in the National Immunization Record in the gray section named "OTRAS" (other vaccines) of the Vaccine column.
Listed in the table to the left are some of the vaccines available in private practice. Combination vaccines available in Or and Mexico are also included in the table (different vaccine components in Pentavalente and Pediarix vaccines are highlighted in color).
*Twinrix (Hep A/B) schedule is 3 doses after 1 year of age. (In Mexico)

Produced by the San Diego Immunization Branch in collaboration with the San Diego-Tijuana Binational Immunization Initiative. Revised for Oregon with premission by Marion County Rev.03/06

Foreign Immunization Card

Binational Immunization Guide:

Interpreting Immunization Schedules

Mexico → USA

This Guide provides information on Mexico's Immunization Schedule, including number of doses and recommended ages. Mexico's schedule is compared side-by-side to the "Recommended Childhood and Adolescent Immunization Schedule" followed by healthcare providers inOr. The Guide also includes information on vaccines available in Mexico in the public sector (this side) and private sector (back).

The Guide facilitates the interpretation of Mexico's Immunization Record and assists healthcare providers, school staff, and childcare providers in assessing immunization records of binational children.

This document follows the format of the "Cartilla Nacional de Vacunación" or National Immunization Record, one of four National Health Records (see below) used throughout Mexico.

	MEXICO					UNITED STATES		
	ESQUEMA BÁSICO DE VACUNACIÓN				Equivalency	BASIC IMMUNIZATION SCHEDULE		
Primary Immunization Series Administered by 1 yr	VACUNA (Vaccine)	ENFERMEDAD (Disease)	DOSIS (Dose)	EDAD (age)		PREVENTABLE DISEASE	VACCINE USED IN US	SCHEDULE
	BCG	Tuberculosis	Única (only one)	Birth	≠	Tuberculosis	Not Used in US	
	Sabin (OPV)	Poliomielitis	Primera (1)	2 m	≡	Polio	IPV *or*	2 m, 4 m, 6-18 m
			Segunda (2)	4 m			Pediarix DTaP + IPV + Hep B	2 m, 4 m, 6 m
			Tercera (3)	6 m				
	Pentavalente DPT + HB + Hib (DTP-Hep B-Hib)	Difteria Tos Ferina Tétanos Hepatitis B Infecciones por H influenzae b	Primera (1)	2 m	≡	Diphtheria Pertussis Tetanus Hepatitis B Hib	DTaP	2 m, 4 m, 6 m
							Hep B	2 m, 4 m, 6 m
			Segunda (2)	4 m			Hib	2 m, 4 m, 6 m^
							Pediarix DTaP + IPV + Hep B	2 m, 4 m, 6 m
			Tercera (3)	6 m			Comvax Hep B + Hib	2 m, 4 m
	Triple Viral SRP (MMR)	Sarampión Rubéola Parotiditis	Primera (1)	1 yr	≡	Measles Rubella Mumps	MMR	12-15 m
Booster Doses and Catch-up Schedule for Children > 1yr	ESQUEMA COMPLEMENTARIO DE VACUNACIÓN					COMPLEMENTARY IMMUNIZATION SCHEDULE (Boosters and Catch-up Schedule)		
	Sabin (OPV)	Poliomielitis	Additional (Additional)	Twice a year (up to 5th yr)	≈	Polio	IPV	4-6 yrs
	DPT (DTP)	Difteria Tos Ferina Tétanos	Refuerzo 1 (Booster)	2 yr	≡ +	Diphtheria Pertussis Tetanus	DTaP (Acellular Pertussis)	12-18 m
			Refuerzo 2	4 yr				4-6 yr
	Triple Viral SRP (MMR)	Sarampión Rubéola Parotiditis	Segunda (2)	6 yr	≡	Measles Rubella Mumps	MMR	4-6 yr
	Td	Tétanos Difteria	Refuerzo (Booster)	Booster after 12 yrs	≡	Tetanus Diphtheria	Td or Tdap	11-12 yr
	ANTIHEPATITIS B* (Hep B)	Hepatitis B (HB)	Primera (1)	12th b-day	+	Hepatitis B	Hep B*	11-12 yr (2 or 3 doses ❸)
			Segunda (2)	1 mo. after 1st				
	SR* (MR)	Sarampión Rubéola	Adicionales (Additional)	Booster	≠	Measles Rubella	Not Used in Oregon	
	No booster doses administered for Hib vaccine. An additional dose needed for children > 1 year of age.				+	H. Influenzae type B (Hib)	Hib *or*	12-15 m
							Comvax Hep B + Hib	12-15 m

≠Not Used in US ≡Equivalent Schedule + Additional Doses Needed ≈Different Schedule, but Valid Doses

* These vaccines are part of a catch-up schedule for older children and adolescents. ^ Dose may be skipped if Pedvax HIB is exclusively used

❸Number of doses depend on brand of vaccine used and age of patient. Adolescents between the ages of 11-15 years may receive only two doses.

Table: Requirements for routine vaccination of immigrants examined overseas who are not fully vaccinated or lack documentation.

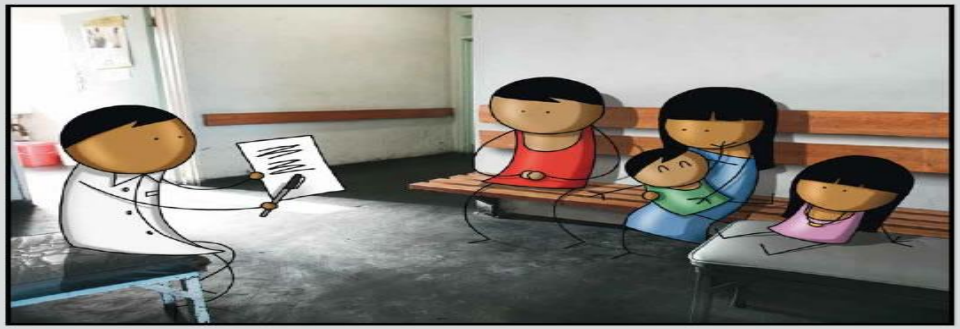
Vaccine	Age						
	Birth–1 month	2–11 months	12 months–6 years	7–10 years	11–17 years	18–64 years	≥65 years
DTP/DTaP/DT	NO	YES		NO			
Td/Tdap	NO			YES, ≥7 years old (for Td); 10–64 years old (for Tdap)			
Polio (IPV/OPV)	NO	YES				NO	
Measles, Mumps, and Rubella	NO		YES, if born in 1957 or later			NO	
Rotavirus	NO	YES 6 weeks to 8 months	NO				
Hib	NO	YES 2–59 months old		NO			
Hepatitis A	NO		YES 12–23 months old	NO			
Hepatitis B	YES, through 18 years old					NO	
Meningococcal (MCV4)	NO				Yes 11–18 years old	NO	
Varicella	NO		YES				

Adapted from ACIP Recommendations

What are we recommending?

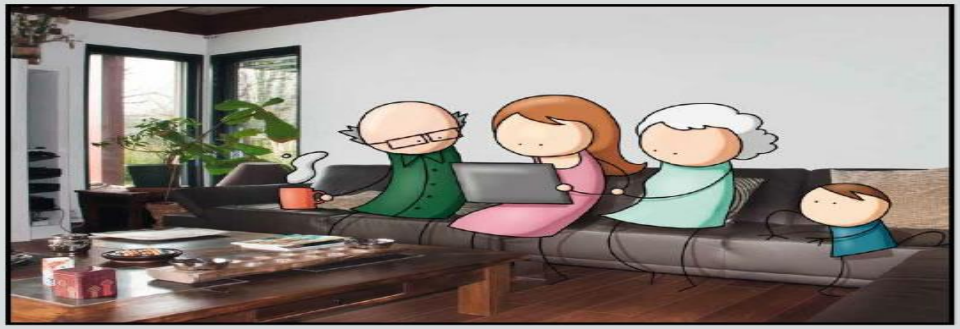
- Narrow the disparity gap
- Funding of whole life vaccines
- Funding of health care services
- Community engagement and education
- Identifying “refugee” in databases
- Refugee service coordination and immunization delivery in primary care
- Primary care provider education

IMMUNIZE FOR A HEALTHY FUTURE



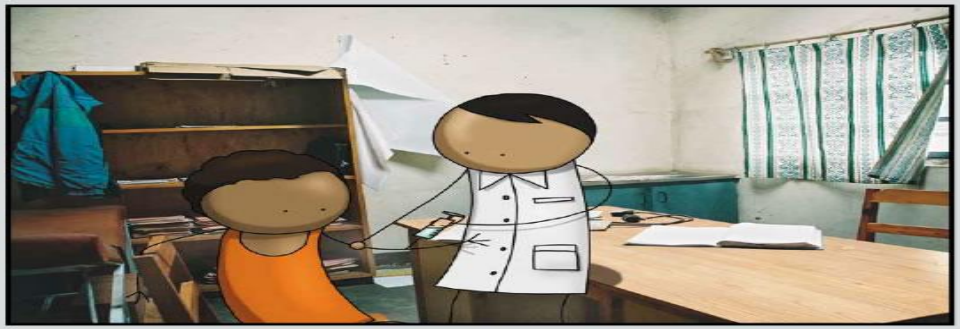
KNOW

Vaccines help keep you and your family healthy. Ask at your health clinic to know which vaccines you need.



CHECK

At home and before travelling, check whether you and your family have all the vaccines you need.



PROTECT

Protect yourself: get the vaccines you need, when you need them.

World Health Organization